AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

" *O fortunatos nimium sua si bona norint*
" *Agricolas.*" . . . . . VIRG.

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AGRICULTURE.

Virginia Husbandry.

The last editorial remarks under this head, were published in number 51 of the 2d volume—the description there given of the "Wheatland" farm may be regarded as a tolerably fair specimen or sample of the *natural* quality, advantages and productiveness of the land over which I passed in Jefferson County; but it would be an egregious exaggeration to hold up that well conducted farm as a standard of the *actual productiveness* of the land in the county generally.—For there is, in this respect, all the difference that exists in the appearance and utility of a noble horse, in the hands of a cruel and ignorant, or a considerate and generous master.

Leaving with sentiments of gratitude and regret the hospitable neighbourhood of Charlestown, I journeyed on by the way of Battletown to Winchester. On the farm of Mr. N. near Battletown, my attention was drawn to a great improvement in the construction of the ox-shovel commonly used on turnpike roads, (but here employed for making ponds to gather rain water for the use of the stock.) In what that improvement exactly consisted I cannot now state, but I recollect that without giving complication to the implement, it gathered the earth more rapidly, and delivered itself of its burthen more easily, than the one in common use. I was promised a drawing of it, but every one knows there are many sensible men and practical farmers, who are really proud of their profession, and industrious in all else—yet, unfortunately for the agricultural body, they have an aversion to the formal communication of their experience or inventions, for publication.

Those who clearly understand the aim of this journal, seeking as it does, to improve our rural economy and to heighten our solid domestic comforts, will judge it not out of place for me to remark here, that I saw at the table of Mr. N. the wheat and maize flour made into bread of almost every form and mode, and in very remarkable perfection. Much credit has been given to the Virginia *farmer* for the superiority of his *bread stuffs*, as indicated by the infinitely varied, and beautiful displays of it on his table—whereas, I am convinced, that altho' something is to be ascribed to his less niggardly manner of grinding his grain,* and to the influence of the *climate*, which produces it: still the chief honor is due to the *wife* who takes a pride in adorning his table by so many skilful and exquisite preparations of this article; and seeing how much we have contracted the sphere for the display of female taste, talents and industry. I take it to be ungenerous to withhold the meed of praise, in any case where it is so manifestly due.

Arriving at Winchester, I had the good fortune to meet with a zealous agriculturist, judge H. not then otherwise known to me but as a much valued correspondent. An invitation to ride over his estate, was accepted with much pleasure; I saw there, an exemplification on a large scale, of the best manner of constructing stone fences, according to a method which the reader will find explained in the first volume of this work. As it was at judge H's, that I saw CHICKORY growing, for the first and only time, I may here properly introduce the following notice of that plant from the Emporium of Arts and Sciences—vol. I. new series, conducted by T. Cooper, esq.—I afterwards understood that the chickory is a favorite object of culture with Mr. Jefferson, who also recommends it as a plant of great value for stock and worthy of our earnest attention:—

CHICORY. SUCCORY. CHICORIUM INTUBUS.

Extract of a letter from Judge Peters to the Editor.

"In the life time of General Washington, many "years ago, he had frequent correspondence with the "Scavans in agriculture, in Europe. It became so "burthensome to him, that at his request I took it off "his hands. I had much intercourse with several of "them on the subject of the chicorium intubus. Ar"thur Young, was enthusiastic *for a time*, in favour of "this plant. He has hot and cold fits on most sub"jects. Both the General and myself tried this "plant as a grass, with no such wonderful effects as "those Mr. Young had portrayed. Yet we found to "a certain point that it was valuable. Having long "given up my farm to tenants, I am only a sort of "chamber-counsel in husbandry. I reserve 20 or 30 "acres for amusement, and on this small scale con"tinue to try every thing I hear of, any wise likely "to be useful. As a material for *Coffee*, I have never "known the *Succory*, as we call it, or *Chicory* as it "is called perhaps with more botanical correctness. "The native succory I found in this part of the "country was a mean plant. If without much trou"ble you could procure for me seed of *good* na"tive or foreign chicory, I will begin some experi"ments on its uses as a substitute for Coffee. In"form me of the method of treating it for this pur"pose. I am, &c. RICHARD PETERS."

The Chicory, is a species of Endive; wild Endive; the seeds of these plants are much alike.

In the state of Pennsylvania, though but in a few places, chicory or succory as the German settlers call it, has been cultivated as a substitute for coffee with much success. The plant is sown in beds either drilled or broad cast; and thinned out to about six or eight inches apart. In the beginning of winter they are taken up, washed, and put into an oven after the bread is drawn. In this state they keep well. When wanted for use, they are again put into the oven after the bread is drawn, and dried till they assume a full brown colour. They are then ground or beaten in a mortar, and mixed with from one fourth to one half of their weight of West India coffee. I have repeatedly drank of this beverage without distinguishing it from common unmixed coffee. In Northumberland and the neighbourhood, and at Williamsport (Pennsylvania) this use of chicory is common. It would be improved, if in the last roasting, the chicory could be roasted with the coffee so as to imbibe the vapour of the latter. The chicory of itself is the best substitute hitherto known.

In England they use (or rather propose, for coffee is too dear there to be a common beverage) as substitutes for coffee, 1st. Roasted Barley. 2dly. The seeds of the yellow water flag, or flower de luce (Iris pseudacorus) 22 of Nich. Journ 70. 3dly. The ockra, which is also a fashionable substitute in the West India Islands. But the German establishments for the manufacture of chicory coffee, and what I know of it by my own experience, leads me to recommend in preference, this plant to all others.

Previous to the capture of Jena, by Bounaparte, there were upwards of two millions of pounds of chicory coffee, exported from that place and Brunswick to various parts of France and Germany.

But whatever may be the use of this plant as a substitute for coffee, it is not to be compared in point of importance to its use in agriculture, particularly as fodder for cattle of all kinds in cases of a dry spring, or summer. It is equally nutritious and more productive than Luzerne, without requiring half the attention.

The first notice I find of the agricultural use of this plant, is in the 16th vol of Young's annals of agriculture, p. 48, where Mr. A. Zappa of Milan, enumerates it as one of the favourite plants in the meadows of Lombardy. This was in 1786. In 1787, Arth. Young being at M. Crette De Palleuil's* near St. Dennis, was so struck with it, that he bought 10 lbs. of the seed, and sowed it at Bradley, 10 lbs. to the acre. In May 21, 1789, he cut it on a small patch, that yielded *at the rate* of upwards of 12 tons 11 cwt. of green fodder per acre, at a time when every other meadow was parched and dried up. On the 24th July he cut the same patch again, which yielded at the rate of 16 tons 4 cwt. of green food: on the 3d of December, he cut it again, and obtained at the rate of 9 tons 14 cwt. per acre; in all, 38 tons and 9 cwt. of grass. This, on losing three fourths in drying, would have yielded upwards of 9 tons of Hay.

But these experiments being made on a small scale, furnished no criterion for a regular course of husbandry, in which chicory should form a permanent part of the meadow crop; he proceeded therefore in sowing it, till in the spring of 1792, he had 14×60=74 acres, either entirely or partially sown with chicory. The other grasses he sowed with it, were the red clover, and timothy, rib grass, poa trivialis or common meadow grass, and these were sown with the chicory on the principle that as this grass does not tiller, the other accompanying grasses fill up the ground and make a full, close sward. It may be noted, that in England, chicory appears as one of the earliest spring grasses, being from three to four inches high on a poor soil on the 11th May; but yet, not so early as the avena elatior the tall oat grass, or the rough cock's foot, dactylus glomeratus, [or orchard grass.] By this time Young had ascertained, 1st. that though a perennial, it will not bear frequent seeding without being impoverished: and 2dly. that it is better to cut it after the first year at least three if not four times, in the course of the season. In this year he has registered the feeding of 58½ acres of chicory alone, or with other grasses, by means of sheep. Indeed, all cattle, horses, oxen sheep and Swine eat it greedily.

* Every purchaser of bran for cows, knows the difference in the value of "Virginia bran," and that from a Baltimore merchant mill.

* The life of this most useful citizen who died 30 Nov. 1799, may be found in 14 Month. Mag. p. 237.

This experiment appears to have turned out very satisfactorily, but it is too long to repeat here. The subsequent numbers of the annals of agriculture contain notices by the editor himself, though few by other persons. In the volume for 1799, I find the following note. "If the reader turns to vol. 28, p. 386, "he will find an account of chicory by Mr. Martin of "Northampton; meeting him this year at the Duke of "Bedford's sheep shearing, he informed me that in "the present season he has nothing on his farm, no "plant or crop whatever, that will keep half the "stock which his chicory will, though it be four "years old."

His account of the French husbandry of chicory may be found in the 2nd vol. of the tour to France p. 62.

In addition to this, I may add, that in the year 1793, Mr. Roscoe of Liverpool, walked with me to see Mr. Wakefield's Dairy from about one and one half mile from the town.

Mr. Wakefield had sown in 1793 about three acres, and cut it 3 times in twelve weeks; the whole was given to ten heavy working horses, who went through their common labour upon it without hay or corn. He calculated to feed his dairy of 120 milch cows during the succeeding summer chiefly on chicory, and in the winter on potatoes steamed. He gave me 2 pounds of the seed, which I distributed partly to Mr. John Adlum then of Muncy, and partly to Mr. Samuel Wallis, but I believe they made no use of it.

His mode of steaming his potatoes is curious. A large iron pot is let down into a hole even with the surface of the ground. A fire place is made underneath, and a brick flue at the opposite end. Round the rim of the pot is a wooden kirb about two or three inches broad. When the water boils, a hogshead full of potatoes (well washed and scrubbed at a trough under the pump) is rolled over the boiler within the wooden kirb. The bottom of the hogshead is pierced full of holes. A loose cover is put on the top. The steam ascends through the holes in the bottom, and in half an hour, the potatoes are boiled. The hogshead is then rolled off and another rolled on. I think he had three iron boilers for the supply of his cattle with steamed potatoes. Potatoes were at that time worth about 2s. 6d. sterling the load of 240 lbs. washed, or 250 in the dirt. A bushel of potatoes will weigh about 72 pounds. The average crop of Lancashire and Cheshire, cannot be taken at less than 400 or 450 bushels per statute acre. This is effected by dint of manure laid on at the rate of 10£. sterling an acre, and accurate weeding, which the potato crop pays for, and brings the land in heart for two or three years.

In 1797, that promoter of British Agriculture the late Duke of Bedford, directed a poor field of brushy soil on his farm at Woburne, worth from 7 to 10s. an acre, to be sowed with chicory. The first year's produce supported seven Leicester sheep averaging 22lb. a quarter, per acre, for six months. His grace was of opinion that no other artificial grass on the same land would have equalled this.

Arthur Young says that the Chicorium Intubus grows wild in Suffolk and other parts of England. The Rev. Mr. Muhlenberg of Lancaster says it is a common plant or rather weed, about Lancaster.—They both agree that in its wild state, it is not worth any thing. But by long course of cultivation the French, and from it, the English seed, is now a very valuable improvement on the wild succory. The Chicory I have seen growing about Northumberland and in Lycoming county, is certainly not equal to what I saw at Mr. Wakefield's in 1793: In 1797 and 1798, the seed sold in London for a dollar and 5s. the lb.

T. C.

An Address delivered before the Massachusetts Agricultural Society at the Brighton Cattle Show, October 17th, 1821. By R. Sullivan.

(Concluded from page 58, No. 8.)

At the present moment the prospect of an increase of his crops, in future years, may not appear to the farmer desirable. The great abundance of the harvest, and the difficulty of obtaining a vent for his produce, fill him with despondence. But is it not true, that if he is compelled to sell cheap, he may buy proportionably cheap whatever he may have need of? Besides, the tendency of plenty is to encourage population, and manufactures, and thus to raise the value of land and to increase the permanent demand for the productions of agriculture. Besides, the farmer has a further resource in seasons of uncommon plenty, to prevent waste—that is, to increase his live stock.

But let us not confine ourselves to the consideration of the progress of agriculture as it may concern alone the prosperity of individuals. The individuals in a country may be rich, and the public at the same time be poor—if having nothing to eat may make a country poor—merchants and manufacturers may be opulent, but if agriculture is neglected, neither the one or the other may be able, in certain exigencies, to procure the necessaries of life. I state an extreme case, but it is no less true, that the substantial wealth of a country, which consists in abundance of food, depends on a flourishing state of agriculture. In a time of scarcity, long continued, whatever we call property would lose its value. Agriculture is not only an indispensible resource, as a means of preserving in being those who now exist, it is no less important as a means of increasing the population of a country. Hitherto our growing numbers have been sustained rather by the clearing of new lands, than by any great progressive improvement of the old. But setting apart but a moderate allowance of forest for the various purposes for which it is important, we must look to a better husbandry for the support of a much greater number of inhabitants.

We cannot be at a loss on what rest our surest hopes of public prosperty, when we consider how independent is agriculture of the hazards and reverses to which commerce and manufactures are exposed.—"The ordinary revolutions of war and government," it has been truly said, "may dry up the sources of "the wealth which arises from these, while that which "arises from the solid improvements of agriculture is "durable. The troubles of the fifteenth and sixteenth "centuries greatly diminish the commerce of Lombar-"dy and Tuscany. But those countries continued not-"withstanding, and still continue, among the most "populous and best cultivated parts of Europe. The "civil wars in Flanders, and the Spanish domination "which succeeded them, chase away the great com-"merce of Ghent, and Antwerp, but Flanders is still "rich, highly productive, and well peopled."*

The wealth of the merchant may be transferred from one country to another, but that of the land proprietor is as fixed as the earth. It is true, the face of a country may be swept by hostile armies, but it is only the harvest of a season which can fall within their destructive grasp; the productive power of the soil still remains unimpaired. But the wealth of the merchant may perish irretrievably by the conflagration of a city, or be sunk in the ocean.

However individuals may be affected, whether farmers or others, by the common vicissitudes of life, as respects the public, the improvements in agriculture are an imperishable and continually accumulating resource.

But it by no means follows that, because agriculture ought not to be neglected, we may therefore turn away from commerce, as if, on the whole, the balance of its good and ill success were equal. It has done much to enrich individuals engaged in its pursuit, it has done more for agriculture. In those countries to which we have just alluded, as having enjoyed a productive commerce, which subsequently passed away, if their agriculture was, for a long time, unrivalled in Europe, it was that very commerce which nurtured it, and finally gave to it all its refinement.

As agriculturists, we have fresh proofs every day of the beneficial operation of commerce on our interests. It takes our surplus produce to its best market. And this is not all—the surplus capital which it throws into the hands of the merchants, naturally tends to the soil as its ultimate destination. Here it finds its greatest security, and here it will be most permanently beneficial to the country. Most of our richest merchants are land proprietors, and to some among them, we are indebted for recent and valuable improvements in agriculture.

It were hardly possible at this time to allude in a public address either to agricultural or commercial interests, much less to treat of them as leading topics, without recalling to the mind of every one, the subject of the new *tariff*, which must again soon engage the attention of Congress. I refer particularly to those parts of it which are professedly designed for the encouragement of domestic manufactures.

However often and ably the right of Congress to control private industry, and to give it a direction into new channels at discretion, may have been recently combated, it cannot be too often urged, that it is an unauthorised assumption of power. It may well be questioned whether any member of the Convention which framed the Constitution, to whatever extent his jealousy of the power to raise a revenue may have carried his apprehensions, ever conceived that it would be used to convert a merchant into a manufacturer, at the pleasure of congress—to compel the farmer to abandon the pursuits of husbandry for the spindle and shuttle—to foreclose the inclinations—the bent of genius, the temperament and tastes of men, and to designate their employments by the statute book. It is no answer to say, that no such power is claimed, and that the measure complained of will produce no such effects—the principle of the measure contemplates such a power, and involves such effects. —If government may so burden and embarrass one branch of industry as to discourage the pursuit of it, avowing the purpose to be to build up another branch at the expense of the first, it has power to go on and curtail or annihilate any or all other branches. Should the company of tallow chandlers think proper to represent before Congress, that it would be for the interest of the nation to prohibit the importation of whale oil, by the imposition of a heavy duty, a concurrence of Congress in their views would be attended with this consequence—that not an American whale ship would be again seen on the ocean, at least none, whose cargoes should be destined for the supply of the home market—and the island of Nantucket might soon be deserted by its seven thousand industrious and thriving inhabitants. We see nothing in this case differing in principle from that of the cotton and woollen manufactures, with the provisions in their favour contained in the new tariff, connected with the views of Congress in making these provisions.

Whatever supposition there may be of public good and national advantage in acts of legislation, by which the claim of one class of industry to the protection of government is declared subordinate to another, it must be ill founded. In general terms, no one will question that the citizen is entitled to the protection of government in his person and property, and that, if such protection means any thing, it is, that each one is to be protected in that calling, which he may elect. But upon the doctrine, that government may have its favorite class, whose interest it may cherish with an exclusive spirit, what becomes of the right to equal protection? In the case we are considering—the merchant enjoys it not; nor the farmer, nor the mechanic. Thus may we go on, and enumerate every denomination of persons in the community, until we come to the fearful result, that the Constitution is a dead letter; and that we have no other security for our rights than the discretionary forbearance of Congress to intermeddle with them.

The present distresses of Great Britain, growing out of a policy, similar to that on which our Government has entered, are known to all. A leading merchant of London, who is also a distinguished statesman,* has pointed out the course by which this accumulation of evil has been brought upon that country. "Whenever" says he, "the assistance of government "is called for by any class of manufacturers or tra-"ders, it is usual to make the most splendid display

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*Smith's Wealth of Nations.

* Alexander Baring.

"of the importance of that particular branch to the "nation at large. The West and East India in- "terests, the ship owners, the manufacturers, and "others, have all made their representations; but it "should be recollected, that it is contrary to sound "policy to advance one beyond its natural means, and "still more so when that *must* be done at the expense "of the others."

The reflection is a pleasant one, that while we are defending the interest of the farmer, so far from opposing that of the manufacturer, we are defending that also—because, after all, his interests will find their best security in his own enterprise, skill, and industry. His calculations on the partiality of government will prove fallacious. A policy, which condemns to a subordinate rank the interests of the great mass of the people, must be short lived. Our manufacturers are known to be in a thriving state—the whole country is proud of their success. The theories of mistaken political economists apart—a doubt may exist whether the manufacturers have any thing to urge in favour of the new duties. Their industry is protected—they are honoured by the community—and the encouragements, which we are prepared to offer on this anniversary to the farmers of our Commonwealth, are to be extended equally to the manufacturers.

The merchant unembarrassed by prohibitory duties will need no stimulus but his own enterprise. The manufacturer will exhibit to us this day ample proofs that he can thrive without the further aid of the government. The farmer alone declines to avail himself of the means of prosperity. He has been too long accustomed to view himself in the light of a day labourer rather than as the professor of an honorable and lucrative art. The mysteries of husbandry are considered but as the lesson of a day—and every man, the moment he becomes the occupant of a farm, is allowed to style himself a competent farmer. "It fills "me with astonishment," said Columella, the Roman, "that while those, who wish to become orators, al- "ways have recourse to one as a teacher, whom they "may take as a model—and those who learn music, "dancing, or any other of the lighter and more frivo- "lus accomplishments, employ, of course, a professed "teacher; Agriculture, that most important of all "arts, has neither masters to teach it, nor pupils "who seek to be taught. Is there then nothing in "it which requires to be studied?—Is there noth- "ing to reward research? For myself," he continues, "when I take an enlarged view of this noblest of all "pursuits, and survey it on all sides, and consider what "it embraces that it wourd be profitable to know, "I fear that I shall see the end of my days before I "shall become a thorough master of all its myste- "ries!"

And how melancholy, gentlemen, are some of the consequences of so great a neglect of agriculture amongst us! Of the sixty thousand individuals, who annually emigrate to the south and west from New England, in search of subsistence, most of them may reach in safety the places of their destination. But if you follow them in imagination, into the wilderness, you will soon see that its morbid dampness and the numerous privations and hardships, to which they are unavoidably exposed, soon finish the work of destruction, which a miserable agriculture had begun. The offspring of parents who possess at home a redundant territory, are compelled, for subsistence, to alienate themselves from their kindred, and to interpose a distance of a thousand or two thousand miles between themselves, and all they have valued from their infancy.

When we learn, that in a canton in one of the highest inhabited regions of the Alps, where neither nature nor art can sustain more than a small number of human beings, it has long been the custom for the young men on attaining to a certain age, to enlist in the military service either of France or Spain, for a term of years, and that all who decline, remain not only without consideration among their countrymen, but are covered with obloquy, we acquiesce in the necessity of this harsh policy. But we have far other impressions of a course of things bearing a similar aspect in Massachusetts—when the neglect of agriculture is the only assignable cause of no inconsiderable part of the emigration which takes place from year to year.

Were the modern improvements, (which have been tested,) allowed to spread themselves over the face of our country, and to fertilize our fields, much of the emigration would cease—manufactures would more extensively flourish, and obtain their only sure and permanent support, an abundant and cheap subsistence for the workmen.

But our agricultural societies are every where rising up, like so many temples of science, inviting our citizens to come and do homage to an art, which is prepared to open a fountain of wealth to gladden our whole country. The institution of shows of industry, is admirably adapted to draw our husbandmen away from the influence of injurious prejudices, and still more injurious habits, and to awaken a spirit of emulation and liberal inquiry. Until within a few years the husbandman was known only as the vender of his produce—now, his skill and industry are expressly recognised as public benefits. He will no longer labour in the retirement of his fields, looking only to so humble a result of his toil, as that of a scanty harvest. No—he will have always in remembrance that a day is appointed, in each year, on which, in the face of the world, he may claim to be named as a benefactor to the public, on exhibiting proofs of uncommon diligence and proficiency in his art. He will come *here*—he will meet an assembled community, as eager to adjust his claims as he may be to urge them. They will enter with him into the field where the competition is held. Those, who from inexperience, or other cause, may be incompetent to weigh the merits of the competitors, will seek to inform themselves by inquiry of those more skilled. All will be ambitious of the honor of anticipating the decision of the judges.

The animated discussion, among the multitude, of topics of agriculture and the useful arts, will give a new interest to the various subjects—the zeal here inspired, and the knowledge obtained, will be carried home, and be soon seen in their effects like the invigorating power of a rich *compost*—and the solitude of the country will be relieved, not only by more ardent and better directed labours, but cheered by more exhilirating prospects

With a power of influence such as this, what limit can we assign to the usefulness of our agricultural societies? The obligation upon them to use this power to its full extent, ought to be deeply impressed—nor should they remit their endeavours to make themselves acquainted with the improvements, which so liberal and so progressive an art may from time to time offer, whether they originate in our own, or in other countries. Nor is it less important, as a means of diffusing these throughout the State, that the Societies should seek to increase their funds, so that their power of bestowing premiums may be commensurate with the improvements they may think it important to recommend. The time, we may hope, will arrive when the smallest details of rural economy may become subjects of reward, as well as the leading operations of husbandry. I say the smallest details, because in husbandry there is nothing which is unimportant or uninteresting. There is nothing so small as not to have, either in a moral or economical view, an influence on the well being of the farmer.—There is nothing of so little consequence, that, if disregarded, its neglect will not be perceived to mar the harmony of that delightful picture—a well ordered, neat and polished husbandry. How soon, we may impatiently ask, how soon shall we behold the day, when such a picture shall gladden our eyes, whichever way we turn them, in this land of precious privileges!

ON SHEEP.—*By John L. North, Esq.*

SIR—As merino sheep are daily becoming more important as well to individuals as to the community, it will not, I hope, be unacceptable to the Society, to have a few remarks on their introduction into some of the countries of Europe; on the practicability of acclimating them here; and also on their great superiority over every other kind now in our state. For a long time it was the prevalent opinion, that merino sheep degenerated in form and size, as well as in fineness of fleece, every where except in Spain; for it was generally believed that their frequent migrations from the flat lands, to the mountains, (to which agriculture was almost entirely sacrificed,) but more especially that some peculiarity in the soil and climate of that country, was essential to their greatest perfection in these respects. From this opinion, we accordingly find no deviation, until the year 1723, when their introduction into Sweden was made a national concern, a premium of 25 per cent. being allowed by the government "on the value of the wool to the grower." The climate of Sweden is regarded as less friendly to sheep than that of any other improved portion of Europe, both on account of the heat and shortness of its summers, and the length and severity of its winters; nevertheless they have not degenerated, even there, although Sweden possesses upwards of 100,000 merinoes of the pure blood, and nearly a century has passed since they were originally introduced. A circumstance so extraordinary as this, it might have been expected would not have been suffered to pass without improvement, much less without notice; yet for a considerable time, (such is the power of prejudice) no attempts were made by other countries to secure this valuable breed. At length in 1786, Louis XVI. after having, by numerous experiments, ascertained that they would do equally well there, imported into France, under the care of Spanish Shepherds, four hundred rams and ewes, which were by permission of the then sovereign king, selected from the best Spanish flocks. These so far from degenerating, on the contrary, have actually improved in every respect; for M. Gilbert, one of the members of the national institute, asserts "that they do not yield in any circumstance, to the most beautiful in point of size, form and strength, or in the fineness, length, softness, strength, and abundance of the fleece." He adds, "the manufacturers and dealers in wool, who came in numbers to Rambouillet this year, (1796) to purchase, unanimously agreed to this fact, at the very time they were combining to keep down the price." This statement is confirmed by M. Tesaire and Huzzard, and likewise by the Duke of Bedford, who says, "that he found the sheep of Rambouillet of a size he was unprepared to expect, and that still the wool preserved its original purity." He also states that "samples of the wool taken when the sheep first arrived, and at various periods, since that time, were examined by him, with all possible accuracy, and evidently declared a progressive improvement." Col. Humphries, of Connecticut, also mentions in his letter to the Agricultural Society, of Massachusetts, that the national flock of France, gave double as much as those of Spain, and still their wool retained its original fineness." In England where they have lately been carried, they have also ardently undergone a change for the better; for Doctor Parry insists, "from his own experience, that the wool of his upland ewes, in the fourth generation, was injured when he put to a full blood Spanish ram." Encouraged by the success of these and other experiments, and believing from circumstances, that even the condition of the imported breed of Europe might be meliorated in this country—in 1802, Mr. Livingston, then our ambassador in France, purchased several ewes and a ram, and shipped them for the U. States. These were picked from the so justly celebrated Rambouillet flock; yet Mr. Livingston declares them to be inferior in every point, to those of his own raising, but particularly in the quality of the wool. "It is certain," says a writer on the subject of merinoes, "that Mr. Caldwell, of New-Jersey, in all his enterprising purchases, from the late importations of Spanish sheep, has never met with any equal in appearance, fineness of fleece, or length of pile, to those of his own raising, from his original flock." Their easy acclimation at the northward, and the great profit derived from them, joined to the persuasion that they would thrive equally well in our climate, induced several merchants to import a few of the mixed breed from the northern states, and some full breed Spanish me-

rinoes into Charleston. A few of both descriptions were disposed of there. I have seen, in different parts of the state, many of the lambs of these, most of them were superior in form and size to the parent stock, and such of their fleeces as I have noticed, were decidedly finer, without adding other proofs of their progressive improvement, and of course, of the practicability of acclimating them in the southern, as well as the northern states. I come now to the principal object of this communication, which is to shew that they are much more advantageous to the farmer. The sheep of this state in particular, may be divided into three or four different kinds, but I shall only notice those that are attended to on account of their wool. The most remarkable of these, indeed the only one worthy of observation, is that which resembles the Southdown sheep of England, which are thus described by Lacock; "It has no horns, its legs and face are grey, its head and upper part of the neck very thick, the pile planted very closely on the pelt, the fleeces very unequal, that of the back differs considerably from the produce of the sides and shoulders, and the brush becomes suddenly very coarse, the pile not uniform, and frequently contains a number of coarse and long hairs, which prove hurtful to the cloth." Their fleeces, it is understood commonly weigh from two to three pounds, and sell in England at about 42 cents the pound. The following description of merino sheep is from Mr. Livingston's book, on that subject. "The race varies greatly in size and beauty, in different parts of Spain. It is commonly rather smaller than the middle size sheep of America. The body is compact, the legs short, the head long, the forehead arched. The ram generally (but not invariably) carries very large spiral horns, has a fine eye and a bold step. The ewes have generally no horns. The wool of these sheep are so much finer and softer than the common wool, as to bear no sort of comparison with it; it is twisted and drawn together like a corkscrew; its length is generally about three inches, but when drawn out, it will stretch to nearly double that length. The wool is, when cleansed, extremely white, yet on the sheep it appears of a yellowish or dirty brown color, owing to the closeness of the coat, and the condensation of the perspiration on the extremities of the fleece. The wool commonly covers a great part of the head, and descends to the hoof of the hind feet, particularly in young sheep; it is also much more greasy than the wool of other sheep. The skin is of a fine carnation red and very thin." It is stated, on good authority, that merino wool has sold in England at upwards of 25s. sterling the pound; at the northward it readily commands two dollars. It has already been remarked, that "the wool of these sheep is so much finer and softer than that of common sheep, as to bear no sort of comparison with it;" but this is not the only circumstance in which they claim a superiority; they also yield more wool in proportion to their size or weight of carcass. To settle this point, five common sheep were weighed on Mr. Livingston's farm, their average weight was found to be 82 lbs. 6 oz. the average weight of each fleece 4 pounds. 4 oz. so that these sheep gave one pound of wool to every twenty pounds of carcass. With the same view twelve half and three-fourth blood ewes were weighed, the average weight of each was 63 lbs. that of the fleece 5 lbs. 14 oz. which is one pound of wool to every ten and a half lbs of carcass. And my own observation convinces me that, great as this difference appears to be, it is not exaggerated. I last year sheared sixteen common sheep, seven of which were three years wethers of fine size; their united fleeces gave me only 32 lbs or 2 lbs. to each fleece, whilst four half bloods, of the common size, one of which was shorn the fall before, yielded me twenty pounds, or five pounds to every sheep. Mr. Arbuthnot, of Bath, (formerly a woollen manufacturer) has for several years tried the Spanish cross with the Wiltshire breed, nearly trebling the wool in quantity, and improving it extremely in quality. "The carcasses," he observes, "are reduced in size, but improved in mould, and their disposition to fatten increased." Now if we suppose the wool of each sort to be worth fifty cents per pound, and their keep through the winter one dollar fifty cents, there will then be a loss of fifty cents on every common fleece, estimating these at two pounds each, which is believed to be a fair estimate; but in the case of mixed merinoes, a clear gain of fifty cents, their fleeces weighing double as much as those of common sheep. In Mr. Livingston's treatise on sheep, to which I am indebted for most of the information this paper contains, and which I earnestly recommend to the attentive perusal of every farmer, a calculation of a similar nature will be found; but it is much more satisfactory, being more particular. He there proves that on 201 common fleeces, the grower will sustain a loss of six dollars and three cents, or three cents per fleece, whilst the same number of mixed merino fleeces will afford a nett profit of 765 dollars; and, if the value of the sheep themselves, and of their lambs, be taken into consideration, there will then be a difference of upwards of 2000 dollars, in favor of the merinoes.—Another advantage, which must not be overlooked is, as has been already mentioned, that they are much more easily kept, and of course less expensive to the farmer. Every animal with which I am acquainted, I will venture to assert, will be found easy or difficult to fatten, precisely in that degree in which it may be well or badly made. A horse, for instance, having few defective points, will take on both flesh and fat more readily than one of a different and inferior structure. Of the common sheep I possess, one is conspicuous for beauty of form. She is always in better order than the rest, their chances being equal; and her lambs are for the most part the best I have. She last year nursed two lambs without any additional food, which are not inferior to any of the same age. Merino sheep, at least those that have come under my observation, possess every advantage in point of form. Compared with other sheep, they exhibit the same superiority that the thorough bred English bull does over the common scrubs of the country, and that they are really more easily kept, is no longer a matter of opinion. Lord Somerville, who has paid particular attention to this matter, asserts "that the same land which carried indifferently 45 long woolied sheep, maintained, in good plight, 150 ryelands, the lambs of which were weaned in good order. These lambs were summered on the same land, at more than twelve per acre; and although kept hard during the winter, the wethers fatted to sixteen pounds the quarter." Laurence observes, "in general, land worth a guinea per acre, will carry and keep in good store state, six and a half Spanish ryelands, from four to four and a half Spanish Southdowns, allowing turnips, pease, and hanlin in the dead winter months. The largest breed of Southdowns, are stocked in Sussex, at the rate of four per acre; of full blood merinoes it will carry a proportionably greater number. They have been found very apt to take on both flesh and fat." "It is understood," says Colonel Humphreys in his letter already referred to, "that the merinoes are more easily maintained and fattened than the taller and larger breed, insomuch that there are persons acquainted with both breeds, who calculate that 200 of these small-boned and short-legged sheep may be kept in tolerably good condition, where 20 of the other would suffer for want." Tollet asserts "that one acre of land which will keep three Southdowns, (similar to our sheep) will be sufficient to keep four merinoes." He adds what is worthy of great attention, "the produce in wool of the Southdowns, would be 13*s.* 6*d.* per acre, that of the merinoes 3*l.* 15*s.* 6*d.* sterling." The common sheep cast their wool in the spring of the year, the merinoes do not; this then is another advantage. The French, English and Swiss Agriculturists, have for particular purposes permitted the wool to remain on the sheep for two and even three years, without injury to the sheep or loss to the grower, for they then afford twice or three times the usual quantity of wool, and of double or treble the usual length. The same experiment has been tried by Mr. Rutherford, of New-York, with a 7-8 ram, and with similar success. From this, another advantage arises, which is certainly of importance, in a climate so variable as ours; I mean the not being obliged to shear them at an unseasonable time. "Sheep are subject to colds and chills of the limbs," which always prove hurtful, oftentimes fatal. "The pelt rot," observes Mr. Livingston, "generally arises from hard keeping and much exposure to wet and cold, and in fact, the animal often dies in severe weather, from the cold it suffers by the loss of its coat;" and lastly they are less liable to disease. Poverty is the parent of half the diseases to which sheep are subject. If then merinoes have a greater disposition to fatten than common sheep, they are of course exactly in that proportion more free from those distempers which have their origin in scanty food.

Before I put an end to this communication, let me persuade every farmer, if his circumstances will admit of it, to procure, as soon as possible, a full blood merino ram, if not, then one of the mixed breed, the higher the grade the better. By a single cross only, he will increase the value of his flock to an astonishing degree, and thus convert an evil into a benefit, since it has been proved that common sheep are not only unproductive, but really expensive.

I am sir, your obedient servant,

JOHN L. NORTH.

J. T. Lewis, Esq. *Corres. Sec'ry.*

***A New Theory of Agriculture, in which the nature of Soils, Crops and Manures is explained; many prevailing prejudices are exploded. And the application of Bones, Gypsum, Lime, Chalk, &c. Is determined on scientific principles, by* W. Grisenthwaite.**

(Continued from No. VIII. page 60.)

CHAPTER II.

ON SOILS.

Vague notions entertained of a soil by practical men. Definition of a soil. Practical applications. Improvement of soils. Tull Husbandry as connected with soils.

We have already seen, that the processes of germination may successfully take place independent of soil, and that the soil, is only a convenient instrument by which those processes may be conducted on a large scale; we have also seen, that the causes contributed to vegetation, are susceptible of much modification from the soil through which they operate, and, therefore it becomes not only an interesting, but a highly important question, to determine the nature of that soil through which those causes may most successfully operate.

The term soil, like many others in familiar use, has never yet been accurately defined; it is applied as the significant expression for land under cultivation, and this application of it is universal. The epithets with which it is conjoined, serve to distinguish particular qualities of such land, and in some instances, and those of much importance, to confound the soil with substances which it contains; substances whose presence is not permanent, but accidental, which may be removed without producing any alteration whatever in it.

In one of the latest, and best digested works on practical agriculture, this is the view in which a soil is said to be commonly regarded. The words of the author are, "the surface, or outward coating of land, usually consists of various earthy matters, with a mixture of animal and vegetable substances in a state of partial decompposition, together with certain saline and mineral ingredients. Where favourably combined, it is admirably calculated to afford support to plants, to enable them to fix their roots,

and, gradually to derive nourishment by their tubes, from the soluble, and dissolved substances contained in the *soil* (as the mixed mass is called) or passing into it."

This description of a soil, and enumeration of the purposes it serves in the œconomy of vegetation, are, according to the opinions entertained of them by practical agriculturists, as clear as they are complete. But they do not sufficiently distinguish its real, from its accidental character; at least, if they answer the received definition, it will be convenient to adopt one that shall be more precise; such a definition being, in reality, no definition at all. That which this year is a rich soil, may next year be a poor one. The very use of the epithets rich and poor, evidently imply, that there is something understood by the term soil, which is independent of those qualities.

Although a soil has, perhaps, never been considered in the manner here stated, yet it is of much importance to the practices of husbandry that it should be. A soil composed of clay, mixed with much decayed vegetable matter, and such are frequently found to exist in old forests, may be very productive for many years —but, in proportion as the vegetable matter becomes exhausted, the land will acquire greater tenacity, and lose that friable property so favorable to the growth of annual plants.

Soil I should define to be, that mixture of earthy bodies which is calculated to furnish support to plants, and serves as a medium through which nourishment may be conveyed to them. There are but few agriculturists who believe that these are the only uses which a soil answers in the business of husbandry. They cannot separate the notion of active powers belonging to that object which is constantly present, where active powers must have existed. Hence a soil has been considered, as the above mentioned writer observes, "as the mother or nurse of vegetation, that discharges functions to plants similar to those which the stomach does to animals, in preparing their food, and fitting it for absorption by their roots."

Although a soil is entirely passive during vegetation, yet, by judicious management, it may be brought into such a condition, as will render it peculiarly fitted for promoting that process —whereas, by neglect, the same soil may be destitute of every requisite. This is a consideration sufficient to make the subject of soils a question of importance, and a knowledge of its nature and uses, of considerable interest. The want of such knowledge, has led many practical men into serious errors. The results of one experiment have frequently been considered as affording sufficient authority for the adoption of practices, which would never have obtained approbation, had such experiment been understood in principle. In Wales, and in many parts of England, the chalking of land has been succeeded by abundant crops and luxuriant herbage. This success has encouraged a disposition to use chalk, where it might, *a priori*, have been pronounced, incapable of doing any good, but, might, probably, produce some mischief. It, perhaps, was never employed with beneficial effects to promote the growth of crops, although it may have been used to improve the qualities of the soil; and how few have considered this operation of that substance, so fully, as to be able to determine, where it could be used with a prospect of advantage.

To understand the uses of soils, is to know what is proper to be done for their improvement, and what will be the probable effects of substances, which are frequently added to them for that purpose. By attending to the preceding definition, many practices, approved as generally beneficial, will be found to be serviceable in particular situations only. Substances, which are now considered as acting as manures, will be ascertained to do no other good, than as they alter the texture of the land. Such has been shewn to be the case with chalk, and such might also be shewn to be the case with marl, with lime, with gypsum, &c.

When I state that a soil furnishes nothing to a plant, I wish to be understood to mean, that, in performing all the purposes and functions of a soil, it furnishes nothing. If chalk (carbonate of lime) form part of a soil, and also a part of the vegetables growing in it, then I consider the chalk in such soil to perform two distinct and independent offices—the one as a part of the soil, modifying its texture; the other as a manure, and contributing a necessary substance, to the plants that grow in it.

As a proof that soils, strictly speaking, furnish nothing to plants, it may be stated, that seeds have been made to germinate, and pass through all the stages of vegetation, in oxides of lead, in sulphur, and even in small shot, where, it is evident, they could derive no nourishment. These are facts very important to be understood, as they suggest the propriety of ascertaining, what substances are really beneficial to vegetation, by contributing to the formation of the crop—and what only serve the purpose of a medium through which those substances are transmitted to it. The latter suffers no change from any species of cropping whatever, whereas the former is, in part, exhausted by every kind, and, consequently, will demand a perpetual renovation.

The subject of soils has but two points of view, in which it can be considered by the agriculturist, with any prospect of advantage.—The first is, to determine the qualities of the best kind, and, the second, to ascertain the best practical modes of improving those that are inferior.

A soil being designed to furnish support to plants, should be possessed of a certain degree of adhesiveness, or tenacity; this is almost always supplied by the presence of clay (alumina;) but adhesiveness alone is not sufficient.—There is also required an opposite property, namely, friability, or looseness of texture, by which the operations of husbandry may be easily conducted; that moisture may have free access to the fibres of the roots, that heat may be readily conveyed to them, and that evaporation may proceed without obstruction. These are commonly attained by the presence of sand, (silex.)

As alumina possesses all the properties of adhesiveness, in an eminent degree, and silex those of friability, it is obvious that a mixture of those two earths, in suitable proportions, would furnish every thing wanted to form the most perfect soil. In a soil so compounded, water will be presented to the roots by capillary attraction. It will be suspended in it, in the same manner that it is suspended in a sponge, not in a state of aggregation, but minute division, so that every part may be said to be moist, but not wet. This capillary attraction slightly resists evaporation, and thereby renders the humidity of the soil more uniform. The degree of this attraction, varies with the magnitude of the particles of earth, being stronger in proportion as they are smaller; hence one of the great advantages of a highly pulverised soil. The facilities that a soil so constituted, communicates to the action of water on vegetation, are also productive of other advantages of equal importance. It is not merely the accession of water that is needed for the successful growth of plants, but because water is the menstruum of manure; and it will be shewn hereafter, that manure is perfectly useless to vegetation, until it becomes soluble; and it would be equally useless in a state of solution, if there were not such a disposition in the soil, as to favour its passage to the roots in regular, and tolerably equal quantities.

Earths are also amongst the worst conductors of heat with which we are acquainted, and consequently, it would be a considerable time before the gradually increasing temperature of spring, could communicate its genial warmth to the roots of vegetables, if their lower strata were not heated by some other means. To remove this defect, which always belongs to a close, compact soil, it is necessary to have the land open, that there may be a free ingress of the warm air, and tepid rains of spring. There are other advantages also connected with the free circulation of moisture in a soil. Water is known to be a condenser, and solvent of carbonic acid gass, which, when the land is open, can be immediately carried to the roots of vegetables, and contribute to their growth; but if the land be close, and the water lie on, or near its surface, then the carbonic acid gas, which always exists in the atmosphere, and is carried down by rains, will soon be dissipated; as is evident from the experiments of *Henry*, and the remarks of *Watson*.

An open soil, besides being favourable to the transmission of nutriment to the roots of plants, is also favourable to the extension of those roots, and thereby enlarges the field whence the nutriment can be derived. Nor are these the only benefits resulting from a friable soil, for, in addition to its being best adapted to the purpose of supplying vegetables with food, it is also most suitable for effecting those changes in the manure itself, which are equally necessary to the preparation of such food.

Animal and vegetable substances, exposed to the alternate action of heat, moisture, light, and air, undergo spontaneous decompositions, which would not take place independent of it.

When all these reasons are considered, can it be at all surprising, that *Tull* should have fancied that no other assistances were required in the well management of the business of husbandry? By observing the constant and striking advantages, derived from keeping the land in a highly pulverized condition, he supposed

that nothing else was required to promote vegetation. Hence, he directed every attention to that object. The practice was good as far as it extended, but not being conducted upon principle, its views were not sufficiently comprehensive, and, consequently, its anticipations were frequently frustrated, and unmerited discredit was brought against the system itself.—Had he been acquainted with the uses of a soil in vegetation, he would not have been disappointed, because he would have moderated expectation. He would have discovered, that the pulverization of the soil, was of no other benefit to the plants that grow on it, than as it facilitated, the more speedy and perfect preparation of their food, and conducted the food so prepared, more regularly to their roots.

There is one particular of very considerable practical importance connected with soils, which it would be improper to pass over in this place. Amongst agriculturists, and in theories of agriculture, it has been an invariable custom to ascribe to particular soils, a peculiar adaptation of crops, and, as far as experience has extended, the opinion appears to have been confirmed. Clays are thought to be peculiarly fitted for the growth of beans, and wheat—chalk for peas, and clover. And light land, as better calculated for barley than wheat.

These are all fanciful distinctions, and have been serious impediments in the way of agricultural improvement If we revert to the definition of a soil, which has been given in this chapter, we shall find that it has no reference whatever to crops. A soil contributes nothing to their formation, and therefore, provided the plants resemble each other in their relation to stability, the same soil, whatever it may be, will answer as well for one crop, as another. As this will probably be objected to by practical men, who seldom reason upon facts, it will be necessary to descend to a plain and simple exemplification of it.

It being my object in this place to shew, that lands, which are confined to the growth of inferior crops, may be employed in the production of those more valuable, I shall select for my purpose what is commonly considered a barley soil, which is generally composed of alumina, or chalk, and so much gravel, or sand, as to render it scarcely adhesive under any circumstances—and which is usually very pulverulent.

If to a soil of such a description, there be added as much manure as is necessary for the production of a crop of barley, and a crop of barley be produced on it, then, it is evident, that such a soil is adapted to the formation of vegetable matter; and, since the vegetable matter of all crops is the same, or composed of the same elements, it is obvious that such a soil would also be adapted to the formation of the vegetable matter of a crop of wheat. It is here that agricultural enquiry should commence.—We have before us the fact, that the land is capable of producing vegetation: if we required still further proof of that fact, such proof would be amply furnished in its spontaneous, and luxuriant production of weeds. Why then, it may be asked, will it produce a good crop of barley, and not of wheat? If the soil were constituted in the best manner possible, it would still contribute nothing to the formation of either the wheat or barley crop. Whatever either of those crops took up for that purpose, must be substances superadded to the soil; and why should those substances which, in one situation, or soil, can operate with success, not perform the same offices in the other? No reason whatever can be assigned. If it be asked, why such land has, experimentally, been found unproductive of wheat, and yet productive of barley, it may be answered, that the present system of agriculture, has left the successful growth of both to accident, and such accident has supplied the substances needed for barley, but not those required for wheat. If a practical farmer were asked, why such land would not grow as good crops of wheat, as it does of barley, it is probable that he would answer—it is too light, or, which amounts to the same thing, wheat prefers a stiffer soil. These are, it is obvious, no reasons at all, until it be shewn how the vegetable process of barley differs from the vegetable process of wheat or any other grain. I have never yet seen, nor heard of any fact that could establish the existence of a dissimilarity, in the manner of vegetable growth, from the first changes of germination, to the moment that fructification commences, that could, with any propriety, be said to depend upon the soil. But after that moment peculiar substances are formed, and it is no longer a proof, because a certain soil, manured in a certain manner, has produced a particular crop, as barley, that it would also have produced any other, as wheat. So far from there being any proof that such indiscriminate production would take place, it is highly probable, independent of all experience, that it would not.

It is necessary that I should guard the reader from extending this reasoning too far. In endeavouring to establish the truth, that the same soil which has produced one crop may be made to produce any other, I do not mean to contend for the equality of all soils, as regard the purposes of vegetation: so far from it, that such a doctrine would be directly adverse to the opinions already advanced concerning the uses of a soil. An open soil will suffer more from the action of water, air, and heat, than one that is compact, and consequently will sooner be exhausted: but this subject will, with more propriety, be considered in detail, when treating on manures.

The definition that I have ventured to give of a soil may be objected to as purely arbitrary, and the etymology of the term may, perhaps, be adduced to shew that it is inaccurate.—With neither of these shall I find fault. Etymology may serve to settle the meaning of a doubtful term, but is a dangerous standard when referred to in order to fix the acceptation of those in daily use: those, which habit has modified, or necessity altered. If a soil be commonly understood to mean land in every state, and in every condition, I can only say, that, in this essay, I shall every where employ it to signify the earthy substances contained in the same, independent of every thing capable of furnishing a constituent part to vegetables.

Having endeavoured to explain the uses of soils, and the manner in which those uses are performed, I shall proceed to offer a few observations on the mode of appreciating their qualities experimentally. The proof which the experiment that I am about to mention affords, is not absolute, but comparative; but might, by an attention to a few other circumstances, be rendered general, and independent. We have seen the vast importance connected with the free circulation of water in a soil. We have proved that on that free circulation depend its temperature, its capability of conducting nourishment to the roots of vegetables, and its adaptation to those spontaneous changes which are required to take place in manure in order to furnish this nourishment; if, therefore, the relative excellence of this property be determined, we shall also arrive at the determination of those others which depend on it To effect this, an equal portion of two soils, perfectly dry, may be introduced into two tall glass cylindrical vessels, in the middle of each of which a glass tube is previously placed. The soils should be put into each in the same manner, not compressed very hard, but so as to receive a solidity approaching to that which they possessed when first obtained for trial. If, after this preparation, a quantity of water be poured into the glass tubes, it will subside; and the capillary attraction of the soils will conduct it up the cylinders towards the tops of the vessels. That which conducts it most rapidly, provided it do not rise from the weight of the incumbent column of water in the tube, may be pronounced to be the better soil.

The improvement of soils, when pursued upon scientific principles, is simple to understand, and when practicable, easy to accomplish; but when extraneous, and accidental bodies are conceived to form a part of the soil, there is not only much difficulty created, but also much uncertainty. One examination will not be sufficient; it must be the perpetual object of attention That this is the case, may appear from what has already been advanced on this subject; but, in addition to that, I shall take the liberty of transcribing a short passage from *Sir John Sinclair's* Code of Agriculture, a work which may be considered the best, as it is the most common standard of reference by practical farmers. Speaking of sandy soils, he says, "their improvement is generally accomplished "by fossil manures; but vegetable manures are "likewise effectual. A top dressing of peat "has been tried for that purpose, and the experiment was attended, not only with immediate "good effects, but with permanent benefit."—That the vegetable manure, and peat, would render sandy soils more productive is reasonable to suppose, but such productiveness would be occasioned, not by improving the quality of the soil, but by furnishing the crops, growing in it, with nourishment. The permanency of effect ascribed to the peat may be questioned—peat is composed of a large quantity of vegetable fibre, mixed with a quantity of earth. All the former would become exhausted after a certain time, so that the whole of the permanent effect must be ascribed to the quantity of earth which remained; and that it is probable, would hardly be in such a quantity, as much to alter the texture of the soil. Hence, it follows, that the soil which has been improved by the addition of

peat, or vegetable manure, will soon require the same additions to be repeated; but the moment when required will not be known to the unscientific farmer, before he finds a deficiency in his crop. The permanent benefit will, however be found to prove exceedingly transitory.

Whenever a soil is too light, or sandy, it is obvious, that clay (alumina) is required for its improvement, and vice versa; and, sometimes, where clay is not procurable, chalk, or marl will answer a good purpose. When the soil is thus improved, as regards its texture, the easy operations of husbandry, and the free passage of water through it, every thing is accomplished that can be accomplished, as far as the soil is concerned.

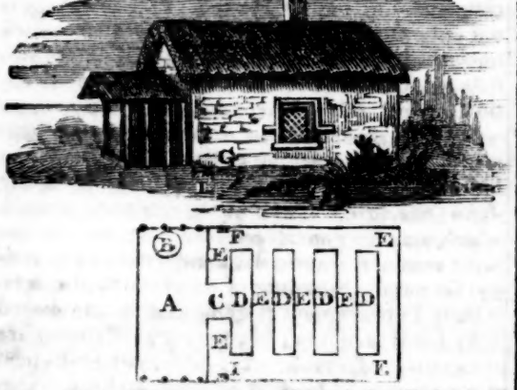
Chalk has been recommended as a substance calculated to correct the sourness of land. It would surely have been a wise practice to have previously ascertained the certainty of this existence of acid, and to have determined its nature, in order that it might be effectually removed. The fact really is, that no soil was ever yet found to contain any notable quantity of uncombined acid. The acetic and carbonic are the ony two that are likely to be generated by any spontoneous decomposition of animal or vegetable bodies, and neither of these have any fixity when exposed to the air.

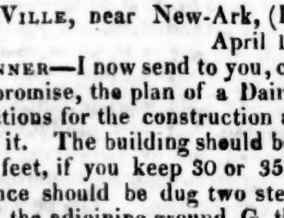
(To be continued.)

THE CONSTRUCTION AND MANAGEMENT OF

A DAIRY;

With remarks on Roots and Corn Crops; Steamed Food, Cluffed Hay, &c.





ROSE VILLE, near New-Ark, (Del.) April 17.

MR. SKINNER—I now send to you, conformably to my promise, the plan of a Dairy, and I annex directions for the construction and management of it. The building should be twenty by sixteen feet, if you keep 30 or 35 cows.—The entrance should be dug two steps below the level of the adjoining ground, G. the whole width of the building, to form an area 16 feet by 7 A., which should be walled and paved with hard smooth brick—over this area should be a penthouse, or a roof supported by posts placed on the wall, and the eaves should project sufficiently to keep the posts dry; under this shed, or roof, all the work should be done, whenever even the thermometer stands as high as 55° of Fahrenheit in the dairy house, except skimming the milk, which may always be done in the house. The warm milk from 30 cows strained in the house immediately after milking, would raise the temperature in summer too high, but this avoided by straining the milk out of doors and leaving it until the milking is all done, before any of it is set away. The walls should be at least 2 feet thick. There should be one window of four lights, of 8 by 10 inches, in each side and end, to make a draught of air in summer: when if flies are troublesome, these windows must be covered with millinet or fine wove wire to keep them out. A ventilator six inches square should be placed in the centre of the building, rise through the floor over the milk room, and project three feet above the ridge of the roof; this will cause a constant circulation of fresh air during the warm weather, which is of much importance, for quantity and quality of cream.—By shutting the glass and applying straw to the outside of the walls, stopping the ventilator, and having double doors, the dairy may be conducted through the winter with facility and profit. In the ground floor of the milk room, there should be the trenches E. E. E. E. E. E. E. which must be kept two-thirds full of water by having a gate I. of a proper height in the drain that conveys the water from the house; which gate, when the dairy is scrubbed and cleansed, as it should be once a week, may be raised to draw off all the water. The trenches for the milk-pans to stand in are to be sunk six inches below the floor, paved in the bottom, and curbed with bricks set on their ends; the water is to be introduced into the trenches at F. and may be entirely discharged at the gate I.—The floor D. D. D. D. should be laid with hard paving brick, in coarse, clean roasted sand, and previous to putting the sand in, a coat of tempered, tough, brick clay must be beat and packed all over the bottom sufficiently thick to prevent the water from escaping. A white oak board ought to be laid next the walls, fitted tight, and calked at the corners—this board is to be plastered to, like the wash or base board of a parlour, and the clay packed to the bottom of the board will make the floor as tight as a bottle. The gate I. by which the water is retained or discharged, is to be made in this wash board. My milk-house is lined with sheet lead soldered; the expense was very great and the house is no better than it would have been if built upon the preceding plan; for clay and white oak will last as long as the sheet lead. If I ever build another dairy it shall have two walls, with a six inch space between them, which shall be filled with pounded charcoal, and have a thatched roof two feet thick. An ice house should be built near to it that the water from the melting ice might be conveyed into the troughs or trenches. The temperature of such a building might be easily kept at 55° of Fahrenheit the whole year round. I would recommend white oak vessels for holding the milk, 9 inches deep and 20 inches diameter, such as bushel measures have to lift them by, and hooped with copper; for they will be found cheaper in the end than earthenware. A large boiler should be fixed on one side of the area A. as shown at B. that the milk pans may be boiled every time they are used. Some persons only scald them, but this will not do to have rich waxey butter, that will keep in hot weather, every utensil used should be well boiled and scalded every time it is ussd. No branch of husbandry requires such constant and unremitted attention, and none has paid better.

Cows should be milked the first three months after calving, three times a day, and at each milking every drop should be taken from the udder; one pint of the milk last drawn from a cow is worth three of the first; the famous Rose butter of Ireland, is made entirely from what dairy folks call the strippings, or last drawn milk. The cows should have salt whenever they choose:—it should be placed in troughs and these be kept supplied with it, for salt will contribute more to the health of cows than all the nostrums extant. They should be kept clean and comfortable, warm in winter and cool in summer. By stall feeding and proper attention, they may be kept milking at least a month longer than when they are suffered to roam at large, annoyed all day by swarms of flies and the distressing heat of a summer's sun. I have kept with one acre of grass, six cows of about four cwt. each; they were all fresh calved, the grass was cut early in the morning, and as much as would last the cows until dusk hauled in a light cart and put into the barn entry; the night's feed I mowed just before sun set; they were fed at sun-rise, 10 o'clock, 3 o'clock, and just before dusk, giving no more at a time than they would eat. By the time one acre was cut and fed, the grass that was first cut had grown to a heavy swarth and was cut again—the manure saved by this method would pay for all the extra labour attending this mode of feeding.—The cows were curried and kept as clean as horses are at a livery; at 6 o'clock in the morning they were turned out of the stable, and at 9 put in, at 5 o'clock again let out, and at milking time stabled again, where they remained until 6 o'clock next morning. In winter I fed the cows that give milk with cut hay, corn stalks, or straw and chaff steamed, and mixed with corn and cob ground together four times a day. Parsnips, carrots, mangel wurtzel and potatoes, are the best green winter food; I have no opinion of turnips; ruta baga is a little better, but I have seen cows and hogs nearly starved by being fed on them; of these a little fed to cattle in winter, that are kept on dry food, may be very serviceable, but from my experience I assert, that I can keep on the produce of an acre of land cultivated in corn, more cows and swine, than W. Cobbett or any braggadocio ever imported into the U. States, could upon the produce of the same acre if cultivated in turnips of any kind. The new milk of cows fed on turnips, is not as nutricious as the skim milk from cows fed as above directed, and the labour of churning turnip milk is *labour in vain*; for if you happen to get butter after churning a day or two it is miserable stuff and not entitled to the name of butter. Sheep and dry cattle are benefitted by having a small mess daily of any green food through the winter, but fed on turnips as Cobbett recommends, they scour and become weak. Swine should have all their food steamed or boiled, and working horses fed on boiled grain and steamed hay, will keep in the same order on half the weight of food which

they require when given in a raw state. I have made minute experiments on feeding hogs, and am certain that one half the quantity of boiled or steamed food will suffice to fatten a hog, or any animal without a cud, that it requires when given in a raw or natural state. Steam food must be given when cold. By simply cutting hay or straw, and feeding them dry to horses and cows, they will go a full third fur ther than feeding them uncut and from racks as is common. But it is time to conclude this desultory epistle, which I will do, by wishes for your success. Accept the assurances of my respect. THOMAS MASSEY.

THE FARMER.

BALTIMORE, FRIDAY, MAY 25, 1821.

☞ Loss by Fire.—The Editor has occasion to announce the destruction of several hundred sets, of this Journal, by the conflagration of a bindery where they had been sent to be bound. The positive loss is extensive and the accident very embarrassing in many ways.

Many subscribers had sent their second volumes to the Editor to have them bound, and these had been committed for that purpose to the same hands which were entrusted with his own, and all shared the same fate. In some other cases the money had been remitted for the three volumes, and we were only waiting for the binding to be completed to send the books.—To such persons we offer either to return the money or to hold it in payment for the work as soon as another edition can be struck off; arrangements will be made to accomplish this immediately. In the mean time we appeal with confidence to every gentle man who permits his name to remain on our list, *to examine the state of his account.* Some have neglected to comply with the express stipulations under which they subscribed to our work, and by such we hope this call will be *immediately attended to.* The profits of more than two years of much solicitude and hard labour, consisted in our extra copies of the Farmer, and these have all been destroyed. It will cost several thousand dollars to reprint them, but the expense will be greatly diminished if our present subscribers by paying up what they owe, will enable us, as we have hitherto done, to have the work done at cash prices—we sincerely trust that this general notice will save us the necessity of a demand in individual cases; we embrace this occasion to request that our friends will use their influence to obtain for us additional subscribers—a more extended correspondence and accumulating materials, will enable us to continue the American Farmer with undiminished usefulness, to the great interest for which it was establisbed—PROVIDED ALWAYS THAT, ☞ *subscribers are punctual in their payments.*

☞ THE CATTLE SHOW AND FAIR.

We have reason to believe that there will be an immense concourse of Farmers from this and the adjoining States, at the Cattle Show and Fair, which is to take place at the Maryland Tavern, four miles from town, on the Frederick turnpike road, on the 7th and 8th of next month, (June). The exhibition of live stock, will far exceed any thing of the kind which has hitherto occurred in this state—and besides those brought as candidates for Premiums, there will be many brought, of different species, for sale. It is to be hoped that Farmers will not be too backward in bringing their Stock, to this first exhibition. It cannot be expected that in the commencement, great perfection will be attained, but every one ought, by way of encouragement, to bring along whatever they have that is any way meritorious.—Should this first attempt go off well, it is difficult to estimate the great advantages that would accrue to the State, and to the Agricultural interest at large from these semi-annual Fairs—an immediate improvement of every kind of domestic animal will ensue, and a knowledge of the best modes of cultivating all sorts of produce, will be disseminated. It is not going too far to say, that the agriculture of the middle states, will be seen to advance instantaneously towards that point of perfection which has been, by similar means, accomplished in the eastern States.

When it is considered that the annual contribution by the members of the Society will not exceed $2 or 3 per annum, it cannot be doubted that all who attend at the fair will enroll their names as members. The greater the funds, the larger and more numerous the premiums, and the more complete will be the future arrangements for conducting the fairs. The funds for the present occasion were contributed by the generosity of a few individuals. For the use of all stock brought for exhibition, food may be procured on the spot at a very moderate rate, and every effort will be made by Mr. Stone, the occupant of the Tavern, to give general satisfaction. He will however have to crave some allowance on this first occasion, as it is difficult to calculate, until after the first meeting, what will be the number that will probably attend.

Horses and mares must be exhibited under the controul of the bridle, and the owners of neat cattle, should be prepared with halters to fasten them while under an examination. The necessary pens will be provided for the safe keeping of whatever is brought.

It is highly necessary that the committee of arrangement should attend on the ground punctually at 9, A. M. on each day of meeting, and all persons willing to become members of the society, are requested to give notice thereof on or before the first day at noon.

☞ Choice Stock—selected by the Editor of the American Farmer to improve the live stock of our country—from the best materials to be had for that purpose.

HORSES.

Clifton—A full blooded Stallion from Virginia, said by Col. Tayloe to be "*equal in pedigree on both sides to any horse in America,*" covers at $15 cash, stands at Caton's mill on the Fall's turnpike 9 miles from Baltimore, on Mondays and Tuesdays; at Bausman's 14 miles out on the Reister's town road, on Wednesdays and Thursdays; and at the Maryland Tavern 4 miles out on the Frederick road, the rest of the week.

Young Tom—was got by judge Winchester's old Tom, bred by Cornelius Howard, Esq. covers at $8 cash, days and places same as Clifton.

ASSES.

Jack, Sancho—14 hands high, imported from Malta, proved to be a very sure getter of uncommonly large mules, covers at $8 cash, and stands altogether at the Maryland Tavern.

BULLS.

Mark Antony—full blooded Alderney, is let to cows at $3 each and stands on a vacant lot near the Medical College on Lombard Street. This breed is remarkable for the richness of their milk; also a superb Teeswater Bull of beautiful form, weighing 1410 pounds at 22 months old; is let to cows at $5 each, at the place where Mark Antony stands. Cows may be left, and will be well fed and taken good care of at the rate of $1 per week.

PRICES CURRENT.

Flour, from the wagons, $3 87½ a 4—*Whiskey*, from do 24 cents per gallon—*Hay*, per ton $19—*Straw*, 7 to $8—Wheat, White 80 to 83 cts—Red, do 76 a 79—*Corn*, 30 to 31; one parcel prime yellow raised by T. B. Hynson, Esq. of Kent County, sold at 32—*Oats*, 23 a 25—*Rye*, 40—*Barley*, 25 to 30 per bushel—*Cod Fish*, per quintal, wholesale $3, retail ditto $4—New-England *Beans* per bushel, $1 12½—ditto *Peas*, 75 cents—*Plaster* in stone $6 per ton—do. ground, $1.35 per barrel, 33 cents per bushel, $8 per ton—New Orleans *Sugar* $9 to 12 50—Muscovado, do. $7 50 to 9 25—American *White Lead*, $12 50—Ground, do. $13 a 14—*Linseed Oil*, 75 cts—*Feathers*, 40 to 45 cts—*Potatoes*, per bushel, 62½ to 75 cts—*Shad*, new, $6—*Herrings*, $2 to 2 25, declining—Fine *Salt* 50 per 100 bushels—Ground Alum do 46 to 48—St. Ubes, 50—Cadiz, 50 to 55—retail do.—Turks' Island, 75—Cadiz ditto, 60—Live *Cattle*, 5 to $5 50—*Beef*, 8 to 10 cts—*Hams*, 10 to 12 cts.—*Middlings*,—10 cts—*Butter*, 20 to 25 cts—*Eggs*, 12½ cts *Cheese*, 8 to 10 cts. pr lb—*Tar*, $1 50—*Turpentine*, $1 87½ to $2; *Pitch*, $2½; *Rosin*, common 1¾, bright do $3 per barrel.—*Varnish*, 25 cts—*Spirits turpentine*, 33 cts per gal.—*Cotton*, good Upland, 13 a 15 cts. very dull—*Rice*, 3 a 3½ cts.—ship and flooring *Plank*, $25 to 27 *Shingles*, best 6¾, to $7, com. $3 to 4½ p. M.

Maryland Tobacco.—Eastern Shore, first quality, 4 to 6; Potomac, first, 4 to 7, second, 2 to 4: Patuxent, first, 5 to 10, second 2 to 4; Wagon Fired, good, 9 to 12; fine, 12 to 14, very fine, 15 to 16. *Virginia Tobacco.*—A few hhds. Richmond, good quality, at 7 dolls 75 cents.

☞ WANTED TO PURCHASE.—A roller for farming purposes; it should roll about ten feet; one of cast iron, would be greatly preferred. Enquire of the Editor of the American Farmer.

SEEDS, &c. &c. &c.

JOSEPH P. CASEY,

No. 2, *Hanover St.* HAS JUST RECEIVED,

FROM the HAGUE, a variety of seeds, for this season; including, TRUE MARBLED MANGEL WURTZEL; Brunswick, Large Amsterdam, Cattle, Flat Dutch, and Drum Head Cabbage; Long Green and Pickling Cucumber; Leyden Cauliflower; Flanders Celery; Large Cattle Carrot, and Parsnip, yellow Norfolk Globe, and Ruta Baga; Turnip seeds; a few bushels of *seed potatoes, ready for planting, &c.*

C. has for sale a variety of Garden Tools, with handles in them. Flower seeds and Roots fit to plant and sow at this season. *Bird* seeds of sorts at 12½ cents per pound. English split peas Books on Gardening, Botany and Agriculture. Wood's Freeborn Patent Ploughs of sizes. He has a few pounds of good Lucern to close sales, which will be sold *for cost*—double twilled English 7 bushel bags.

☞A second hand Ox Cart, a large triangle Harrow, Turnip Drill, and Roller; to close sales will be sold cheap.

Just Published and for Sale.

A TREATISE

On the Culture and growth of different sorts of Flower Roots and Green House Plants, kept in rooms, &c. to which is added a Table of the Linnean classes of Botany, with their orders and examples—by

JOSEPH P. CASEY,
2 Hanover-street

The treatise now presented principally to the notice of ladies, is the result of twenty years personal experience in the culture and management of plants, and is intended chiefly for those who keep plants in rooms and have flower gardens in or near towns; the author flatters himself that it will also be found useful to the public at large, as it contains many valuable hints shewing the best method of propagating the different sorts of plants therein treated of. The above will be sold, or exchanged for books on gardening, botany, agriculture, chemistry or rural affairs, on the lowest terms.

Jack For Sale.—Price $700.

HE was purchased at Majorca, and imported last Spring by an officer of the Navy, was selected by competent judges, and is from the finest stock on that island, where this species excel. He is now, although only five years old, about fourteen hands high; his color a dark brown, or black, with white muzzle; his size the largest ever known in the Beleoric Islands, where this race is uncommonly large and full of bone. Mules produced by jacks of this breed, are commonly 15½ hands high, frequently 16. For further particulars apply to the Editor of the American Farmer.